

What is claimed is:

Sub 1
7 1. A propylene/1-butene random copolymer composition comprising 50 to 97% by weight of a propylene/1-butene random copolymer (A) and 3 to 50% by weight of a low-density polyethylene (B) obtainable by high pressure processes,

said propylene/1-butene random copolymer (A):

(1) comprising 50 to 95 mol% of structural units derived from propylene and 5 to 50 mol% of structural units derived from 1-butene;

(2) exhibiting a melt flow rate (measured at 230°C under a load of 2.16 kg in accordance with ASTM D 1238) of 0.1 to 40 g/10 min;

(3) having a molecular weight distribution (Mw/Mn), measured by gel permeation chromatography (GPC), of up to 3; and

(4) having a B-value, being a parameter indicating a randomness of copolymer monomer chain distribution, of 1.0 to 1.5, and

said low-density polyethylene (B):

(1) exhibiting a melt flow rate (measured at 190°C under a load of 2.16 kg in accordance with ASTM D 1238) of 1 to 30 g/10 min; and

(2) having a density of not greater than 0.940 g/cm³.

2. The propylene/1-butene random copolymer composition as claimed in claim 1, wherein

the propylene/1-butene random copolymer (A):

(4) has a B-value, being a parameter indicating a randomness of copolymer monomer chain distribution, of 1.0 to 1.3;

(5) has a melting point T_m , measured by a differential scanning calorimeter, of 60 to 140°C,

said melting point, T_m , and a content of 1-butene structural units, M (mol%), satisfying the relationship:

$$-2.6 M + 130 \leq T_m \leq -2.3 M + 155; \text{ and}$$

(6) has a crystallinity measured by X-ray diffractometry, $C(\%)$, said crystallinity and the content of 1-butene structural units, M (mol%), satisfying the relationship:

$$C \geq -1.5 M + 75, \text{ and}$$

Said low-density polyethylene (B):

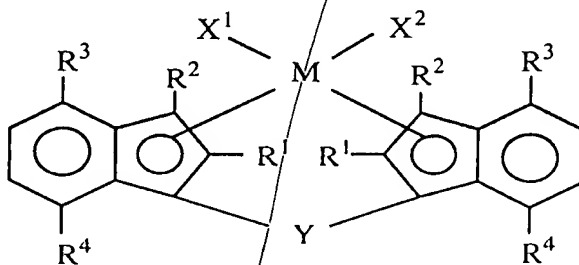
(3) exhibits a melt flow rate (measured at 190°C under a load of 2.16 kg in accordance with ASTM D 1238) of 1 to 25 g/10 min; and

(4) has a density of 0.915 to 0.935 g/cm³.

3. The propylene/1-butene random copolymer composition as claimed in claim 1, wherein the propylene/1-butene random copolymer (A) is obtained by copolymerizing propylene and 1-butene in the presence of an olefin polymerization catalyst,

said olefin polymerization catalyst comprising:

(a) a transition metal compound represented by the general formula:



. . . [I]

wherein:

M represents a transition metal of Group IVa, Va or VIA of the periodic table;

each of R^1 and R^2 independently represents a hydrogen atom, a halogen atom, a hydrocarbon group having 1 to 20 carbon atoms, a halogenated hydrocarbon group having 1 to 20 carbon atoms, a silicon-containing group, an oxygen-containing group, a sulfur-containing group, a nitrogen-containing group or a phosphorus-containing group;

each of R^3 independently represents a secondary or tertiary alkyl having 3 to 20 carbon atoms or an aromatic group having 6 to 20 carbon atoms;

each of R^4 independently represents a hydrogen atom or an alkyl group having 1 to 20 carbon atoms;

each of X^1 and X^2 independently represents a hydrogen atom, a halogen atom, a hydrocarbon group having 1 to 20 carbon atoms, a halogenated hydrocarbon group having 1 to 20 carbon atoms, an oxygen-containing group or a sulfur-containing group;

Y represents a divalent hydrocarbon group having 1 to 20 carbon atoms, a divalent halogenated hydrocarbon group having 1 to 20 carbon atoms, a divalent silicon-containing group, a divalent germanium-containing group, a divalent tin-containing group, -O-, -CO-, -S-, -SO-, -SO₂-, -NR⁵-, -P(R⁵)-, -P(O)(R⁵)-, -BR⁵- or -AlR⁵- (provided that R⁵ represents a hydrogen atom, a halogen atom, a hydrocarbon group having 1 to 20 carbon atoms or a halogenated hydrocarbon group having 1 to 20 carbon atoms), and

(b) an organoaluminum oxy compound (b-1) and/or a compound (b-2) capable of reacting with the transition metal compound (a) to thereby form an ion pair.

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4. A composite film comprising a substrate film and, laminated onto at least one side thereof, a resin layer of the propylene/1-butene random copolymer composition of claim 1, said resin layer having a thickness of 2 to 200 μm .

Sub B3 → 5. The propylene/1-butene random copolymer composition as claimed in claim 1, wherein the low-density polyethylene (B) obtainable by high pressure processes comprises an ethylene homopolymer or a copolymer of ethylene and an α -olefin having 3 to 20 carbon atoms.

Sub C3 → 6. The propylene/1-butene random copolymer composition as claimed in claim 5, wherein the α -olefin is at least one selected from the group consisting of propylene, 1-butene, 1-pentene, 2-methyl-1-butene, 3-methyl-1-butene, 1-hexene, 3-methyl-1-pentene, 4-methyl-1-pentene, 3,3-dimethyl-1-butene, 1-heptene, methyl-1-hexene, dimethyl-1-pentene, trimethyl-1-butene, ethyl-1-pentene, 1-octene, methyl-1-pentene, dimethyl-1-hexene, trimethyl-1-pentene, ethyl-1-hexene, methylethyl-1-pentene, diethyl-1-butene, propyl-1-pentene, 1-decene, methyl-1-nonene, dimethyl-1-octene, trimethyl-1-heptene, ethyl-1-octene, methylethyl-1-heptene, diethyl-1-hexene, 1-dodecene and 1-hexadodecene.

7. The propylene/1-butene random copolymer composition as claimed in claim 1, which further comprises an antioxidant, an ultraviolet absorber, a lubricant, a nucleating agent, an antistatic agent, a flame retarder, a pigment, a dye or a filler.

8. The propylene/1-butene random copolymer composition as claimed in claim 7, wherein the filler is an organic filler or an inorganic filler.

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